

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30				1. REQUISITION NUMBER PR-CI-04-10427		PAGE 1 OF	
2. CONTRACT NO.		3. AWARD/EFFECTIVE DATE		4. ORDER NUMBER		5. SOLICITATION NUMBER PR-CI-04-10427	
7. FOR SOLICITATION INFORMATION CALL:		a. NAME TAMMY ADAMS		b. TELEPHONE NUMBER (No collect calls) (513) 487-2030		6. SOLICITATION ISSUE DATE 3/24/2004	
9. ISSUED BY Environmental Protection Agency Cincinnati Procurement Operations Division 26 W. Martin Luther King Drive Cincinnati, OH 45268				10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED <input type="checkbox"/> SET ASIDE: <input type="checkbox"/> SMALL BUSINESS % FOR <input type="checkbox"/> SMALL DISADV. BUSINESS <input type="checkbox"/> 8(A) NAICS: 334519 SIZE STANDARD: 500		11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) 13b. RATING 14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP	
15. DELIVER TO				12. DISCOUNT TERMS			
17a. CONTRACTOR/OFFEROR				16. ADMINISTERED BY			
17a. CONTRACTOR/OFFEROR				18a. PAYMENT WILL BE MADE BY Environmental Protection Agency Research Triangle Park Financial Management Center (D143-02) Research Triangle Park, NC 27711			
TELEPHONE NO.				18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a. UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM			
17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a. UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM			
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES			21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	See Attached Documents						
25. ACCOUNTING AND APPROPRIATION DATA N/A							26. TOTAL AWARD AMOUNT (For Govt. Use Only)
27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.							
27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.							
28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.				29. AWARD OF CONTRACT: REFERENCE _____ OFFER <input type="checkbox"/> DATED _____, YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)			
30b. NAME AND TITLE OF SIGNER (TYPE OR PRINT)				31b. NAME OF CONTRACTING OFFICER (TYPE OR PRINT) DAVID H. PLAGGE			
30c. DATE SIGNED				31c. DATE SIGNED			
32a. QUANTITY IN COLUMN 21 HAS BEEN <input type="checkbox"/> RECEIVED <input type="checkbox"/> INSPECTED <input type="checkbox"/> ACCEPTED AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED				33. SHIP NUMBER <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		34. VOUCHER NUMBER	
32b. SIGNATURE OF AUTHORIZED GOVT. REPRESENTATIVE				32c. DATE		35. AMOUNT VERIFIED CORRECT FOR	
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT				36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		37. CHECK NUMBER	
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER				41c. DATE		38. S/R ACCOUNT NUMBER	
				42a. RECEIVED BY (Print)		39. S/R VOUCHER NUMBER	
				42b. RECEIVED AT (Location)		40. PAID BY	
				42c. DATE REC'D (YY/MM/DD)		42d. TOTAL CONTAINERS	

AUTHORIZED FOR LOCAL REPRODUCTION

SEE REVERSE FOR OMB CONTROL NUMBER AND PAPERWORK
BURDEN STATEMENT**STANDARD FORM 1449** (10-95)
Prescribed by GSA - FAR (48 CFR) 53.212

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (VRS), Office of Federal Acquisition Policy, GSA, Washington, DC 20405.

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TABLE OF CONTENTS

1.	CONTRACT TERMS AND CONDITIONS -- COMMERCIAL ITEMS (FAR 52.212-4) (OCT 2003)	Page 4
2.	CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS -- COMMERCIAL ITEMS (FAR 52.212-5) (JAN 2004)	Page 8
3.	INSTRUCTIONS TO OFFERORS -- COMMERCIAL ITEMS (FAR 52.212-1) (JAN 2004)	Page 12
4.	EVALUATION -- COMMERCIAL ITEMS (FAR 52.212-2) (JAN 1999)	Page 16
5.	OFFEROR REPRESENTATIONS AND CERTIFICATIONS -- COMMERCIAL ITEMS (FAR 52.212-3) (JAN 2004)	Page 16
	ADDENDUM TO FAR CLAUSE 52.212-4	Page 1-1
1.	EVALUATION OF OPTIONS (FAR 52.217-5) (JUL 1990)	Page 1-2
2.	COMPLIANCE WITH EPA POLICIES FOR INFORMATION RESOURCES MANAGEMENT (EPAAR 1552.211-79) (OCT 2000)	Page 1-2
3.	TECHNICAL QUESTIONS (EP 52.215-110) (APR 1984)	Page 1-3
4.	OPTION FOR INCREASED QUANTITY--FIXED-PRICE CONTRACT (EP 52.217-982) (APR 1984)	Page 1-3
5.	CONTRACT ADMINISTRATION REPRESENTATIVES (EP 52.242-100) (AUG 1984)	Page 1-5
	STATEMENT OF WORK	Page 2-1
	TEHNICAL EVALUATION CRITERIA	Page 3-1
	TECHNICAL PROPOSAL INSTRUCTIONS	Page 4-1

1. CONTRACT TERMS AND CONDITIONS -- COMMERCIAL ITEMS (FAR 52.212-4) (OCT 2003)

(a) *Inspection/Acceptance.* The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. The Government must exercise its post-acceptance rights --

(1) Within a reasonable time after the defect was discovered or should have been discovered; and

(2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(b) *Assignment.* The Contractor or its assignee may assign its rights to receive payment due as a result of performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency in accordance with the Assignment of Claims Act (31 U.S.C.3727). However, when a third party makes payment (e.g., use of the Governmentwide commercial purchase card), the Contractor may not assign its rights to receive payment under this contract.

(c) *Changes.* Changes in the terms and conditions of this contract may be made only by written agreement of the parties.

(d) *Disputes.* This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613). Failure of the parties to this contract to reach agreement on any request for equitable adjustment, claim, appeal or action arising under or relating to this contract shall be a dispute to be resolved in accordance with the clause at FAR 52.233-1, Disputes, which is incorporated herein by reference. The Contractor shall proceed diligently with performance of this contract, pending final resolution of any dispute arising under the contract.

(e) *Definitions.* The clause at FAR 52.202-1, Definitions, is incorporated herein by reference.

(f) *Excusable delays.* The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence such as, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(g) *Invoice.* (1) The Contractor shall submit an original invoice and three copies (or electronic invoice, if authorized) to the address designated in the contract to receive invoices. An invoice must include--

(i) Name and address of the Contractor;

(ii) Invoice date and number;

(iii) Contract number, contract line item number and, if applicable, the order number;

(iv) Description, quantity, unit of measure, unit price and extended price of the items delivered;

(v) Shipping number and date of shipment, including the bill of lading number and weight of shipment if shipped on Government bill of lading;

(vi) Terms of any discount for prompt payment offered;

(vii) Name and address of official to whom payment is to be sent;

(viii) Name, title, and phone number of person to notify in event of defective invoice; and

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision, contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(2) Invoices will be handled in accordance with the Prompt Payment Act (31 U.S.C. 3903) and Office of Management and Budget (OMB) prompt payment regulations at 5 CFR part 1315.

(h) *Patent indemnity.* The Contractor shall indemnify the Government and its officers, employees and agents against liability, including costs, for actual or alleged direct or contributory infringement of, or inducement to infringe, any United States or foreign patent, trademark or copyright, arising out of the performance of this contract, provided the Contractor is reasonably notified of such claims and proceedings.

(i) *Payment.*--(1) *Items accepted.* Payment shall be made for items accepted by the Government that have been delivered to the delivery destinations set forth in this contract.

(2) *Prompt payment.* The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and prompt payment regulations at 5 CFR part 1315.

(3) *Electronic Funds Transfer (EFT).* If the Government makes payment by EFT, see 52.212-5(b) for the appropriate EFT clause.

(4) *Discount.* In connection with any discount offered for early payment, time shall be computed from the date of the invoice. For the purpose of computing the discount earned, payment shall be considered to have been made

on the date which appears on the payment check or the specified payment date if an electronic funds transfer payment is made.

(5) *Overpayments.* If the Contractor becomes aware of a duplicate contract financing or invoice payment or that the Government has otherwise overpaid on a contract financing or invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(j) *Risk of loss.* Unless the contract specifically provides otherwise, risk of loss or damage to the supplies provided under this contract shall remain with the Contractor until, and shall pass to the Government upon:

(1) Delivery of the supplies to a carrier, if transportation is f.o.b. origin; or

(2) Delivery of the supplies to the Government at the destination specified in the contract, if transportation is f.o.b. destination.

(k) *Taxes.* The contract price includes all applicable Federal, State, and local taxes and duties.

(l) *Termination for the Government's convenience.* The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges the Contractor can demonstrate to the satisfaction of the Government using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred which reasonably could have been avoided.

(m) *Termination for cause.* The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(n) *Title.* Unless specified elsewhere in this contract, title to items furnished under this contract shall pass to the Government upon acceptance, regardless of when or where the Government takes physical possession.

(o) *Warranty.* The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(p) *Limitation of liability.* Except as otherwise provided by an express warranty, the Contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items.

(q) *Other compliances.* The Contractor shall comply with all applicable Federal, State and local laws, executive orders, rules and regulations applicable to its performance under this contract.

(r) *Compliance with laws unique to Government contracts.* The Contractor agrees to comply with 31 U.S.C. 1352 relating to limitations on the use of appropriated funds to influence certain Federal contracts; 18 U.S.C. 431 relating to officials not to benefit; 40 U.S.C. 327, et seq., Contract Work Hours and Safety Standards Act; 41 U.S.C. 51-58, Anti-Kickback Act of 1986; 41 U.S.C. 265 and 10 U.S.C. 2409 relating to whistleblower protections; 49 U.S.C. 40118, Fly American; and 41 U.S.C. 423 relating to procurement integrity.

(s) *Order of precedence.* Any inconsistencies in this solicitation or contract shall be resolved by giving precedence in the following order:

- (1) The schedule of supplies/services.
- (2) The Assignments, Disputes, Payments, Invoice, Other Compliances, and Compliance with Laws Unique to Government Contracts paragraphs of this clause.
- (3) The clause at 52.212-5.
- (4) Addenda to this solicitation or contract, including any license agreements for computer software.
- (5) Solicitation provisions if this is a solicitation.
- (6) Other paragraphs of this clause.
- (7) The Standard Form 1449.
- (8) Other documents, exhibits, and attachments.
- (9) The specification.

(t) *Central Contractor Registration (CCR).* (1) Unless exempted by an addendum to this contract, the Contractor is responsible during performance and through final payment of any contract for the accuracy and completeness of the data within the CCR database, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to review and update on an annual basis from the date of initial registration or subsequent updates its information in the CCR database to ensure it is current, accurate and complete. Updating information in the CCR does not alter the terms and conditions of this contract and is not a substitute for a properly executed contractual document.

(2)(i) If a Contractor has legally changed its business name, "doing business as" name, or division name (whichever is shown on the contract), or has transferred the assets used in performing the contract, but has not completed the necessary requirements regarding novation and change-of-name agreements in FAR subpart 42.12, the Contractor shall provide the responsible Contracting Officer a minimum of one business day's written notification of its intention to (A) change the name in the CCR database; (B) comply with the requirements of subpart 42.12; and (C) agree in writing to the timeline and procedures specified by the responsible Contracting Officer. The Contractor must provide with the notification sufficient documentation to support the legally changed name.

(ii) If the Contractor fails to comply with the requirements of

paragraph (t)(2)(i) of this clause, or fails to perform the agreement at paragraph (t)(2)(i)(C) of this clause, and, in the absence of a properly executed novation or change-of-name agreement, the CCR information that shows the Contractor to be other than the Contractor indicated in the contract will be considered to be incorrect information within the meaning of the "Suspension of Payment" paragraph of the electronic funds transfer (EFT) clause of this contract.

(3) The Contractor shall not change the name or address for EFT payments or manual payments, as appropriate, in the CCR record to reflect an assignee for the purpose of assignment of claims (see Subpart 32.8, Assignment of Claims). Assignees shall be separately registered in the CCR database. Information provided to the Contractor's CCR record that indicates payments, including those made by EFT, to an ultimate recipient other than that Contractor will be considered to be incorrect information within the meaning of the "Suspension of payment" paragraph of the EFT clause of this contract.

(4) Offerors and Contractors may obtain information on registration and annual confirmation requirements via the internet at <http://www.ccr.gov> or by calling 1-888-227-2423 or 269-961-5757.

2. CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS -- COMMERCIAL ITEMS (FAR 52.212-5) (JAN 2004)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clause, which is incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items: 52.233-3, Protest after Award (AUG 1996) (31 U.S.C. 3553).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

[Contracting Officer check as appropriate.]

X(1) 52.203-6, Restrictions on Subcontractor Sales to the Government (JUL 1995), with Alternate I (OCT 1995) (41 U.S.C. 253g and 10 U.S.C. 2402).

___(2) 52.219-3, Notice of Total HUBZone Set-Aside (JAN 1999) (15 U.S.C. 657a).

X(3) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (JAN 1999) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).

___(4)(i) 52.219-5, Very Small Business Set-Aside (JUNE 2003) (Pub. L. 103-403, section 304, Small Business Reauthorization and Amendments Act of 1994).

___(ii) Alternate I (MAR 1999) of 52.219-5.

___(iii) Alternate II (JUNE 2003) of 52.219-5.

___(5)(i) 52.219-6, Notice of Total Small Business Set-Aside (JUNE 2003) (15 U.S.C. 644).

___(ii) Alternate I (OCT 1995) of 52.219-6.

___(6)(i) 52.219-7, Notice of Partial Small Business Set-Aside (JUNE 2003) (15 U.S.C. 644).

___(ii) Alternate I (OCT 1995) of 52.219-7.

X(7) 52.219-8, Utilization of Small Business Concerns (OCT 2000) (15 U.S.C. 637 (d)(2) and (3)).

X(8)(i) 52.219-9, Small Business Subcontracting Plan (JAN 2002) (15 U.S.C. 637(d)(4)).

___(ii) Alternate I (OCT 2001) of 52.219-9.

___(iii) Alternate II (OCT 2001) of 52.219-9.

___(9) 52.219-14, Limitations on Subcontracting (DEC 1996) (15 U.S.C. 637(a)(14)).

X(10)(i) 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns (JUNE 2003) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323) (if the offeror elects to waive the adjustment, it shall so indicate in its offer).

___(ii) Alternate I (JUNE 2003) of 52.219-23.

___(11) 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (OCT 1999) (Pub.L. 103-355, section 7102, and 10 U.S.C. 2323).

___(12) 52.219-26, Small Disadvantaged Business Participation Program--Incentive Subcontracting (OCT 2000) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).

X(13) 52.222-3, Convict Labor (JUNE 2003) (E.O. 11755).

X(14) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (Jan 2004) (E.O. 13126).

X(15) 52.222-21, Prohibition of Segregated Facilities (FEB 1999).

X(16) 52.222-26, Equal Opportunity (APR 2002) (E.O. 11246).

X(17) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212).

X(18) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

X(19) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212).

___(20)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Products (AUG 2000) (42 U.S.C. 6962(c)(3)(A)(ii)).

___(ii) Alternate I (AUG 2000) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)).

___(21) 52.225-1, Buy American Act--Supplies (JUNE 2003) (41 U.S.C. 10a-10d).

__(22)(i) 52.225-3, Buy American Act--Free Trade Agreements--Israeli Trade Act (Jan 2004) (41 U.S.C. 10a-10d, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, Pub. L. 108-77, 108-78).

__ (ii) Alternate I (Jan 2004) of 52.225-3.

__ (iii) Alternate II (Jan 2004) of 52.225-3.

X(23) 52.225-5, Trade Agreements (Jan 2004) (19 U.S.C. 2501, et seq., 19 U.S.C. 3301 note).

X(24) 52.225-13, Restrictions on Certain Foreign Purchases (OCT 2003) (E.o.s proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

__(25) 52.225-15, Sanctioned European Union Country End Products (FEB 2000) (E.O. 12849).

__(26) 52.225-16, Sanctioned European Union Country Services (FEB 2000) (E.O. 12849).

X(27) 52.232-29, Terms for Financing of Purchases of Commercial Items (FEB 2002) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).

__(28) 52.232-30, Installment Payments for Commercial Items (OCT 1995) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).

X(29) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (OCT 2003) (31 U.S.C. 3332).

__(30) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (MAY 1999) (31 U.S.C. 3332).

__(31) 52.232-36, Payment by Third Party (MAY 1999) (31 U.S.C. 3332).

__(32) 52.239-1, Privacy or Security Safeguards (AUG 1996) (5 U.S.C. 552a).

__(33)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (APR 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631).

__(ii) Alternate I (APR 1984) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

[Contracting Officer check as appropriate.]

__(1) 52.222-41, Service Contract Act of 1965, as Amended (MAY 1989) (41 U.S.C. 351, et seq.).

__(2) 52.222-42, Statement of Equivalent Rates for Federal Hires (MAY 1989) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

__(3) 52.222-43, Fair Labor Standards Act and Service Contract Act--Price Adjustment (Multiple Year and Option Contracts) (MAY 1989) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

___(4) 52.222-44, Fair Labor Standards Act and Service Contract Act--Price Adjustment (February 2002) (29 U.S.C. 206 and 41 U.S.C. 351, *et seq.*).

___(5) 52.222-47, SCA Minimum Wages and Fringe Benefits Applicable to Successor Contract Pursuant to PreDecemberessor Contractor Collective Bargaining Agreements (CBA) (May 1989) (41 U.S.C. 351, *et seq.*).

(d) *Comptroller General Examination of Record.* The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records -- Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in paragraphs (i) through (vi) of this paragraph in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause--

(i) 52.219-8, Utilization of Small Business Concerns (October 2000) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$500,000 (\$1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (April 2002) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (December 2001) (38 U.S.C. 4212).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793).

(v) 52.222-41, Service Contract Act of 1965, as Amended (May 1989), flow down required for all subcontracts subject to the Service Contract Act of 1965 (41 U.S.C. 351, *et seq.*).

(vi) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (April 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

3. INSTRUCTIONS TO OFFERORS -- COMMERCIAL ITEMS (FAR 52.212-1) (JAN 2004)

(a) *North American Industry Classification System (NAICS) code and small business size standard.* The NAICS code and small business size standard for this acquisition appear in Block 10 of the solicitation cover sheet (SF 1449). However, the small business size standard for a concern which submits an offer in its own name, but which proposes to furnish an item which it did not itself manufacture, is 500 employees.

(b) *Submission of offers.* Submit signed and dated offers to the office specified in this solicitation at or before the exact time specified in this solicitation. Offers may be submitted on the SF 1449, letterhead stationery, or as otherwise specified in the solicitation. As a minimum, offers must show--

- (1) The solicitation number;
- (2) The time specified in the solicitation for receipt of offers;
- (3) The name, address, and telephone number of the offeror;
- (4) A technical description of the items being offered in sufficient detail to evaluate compliance with the requirements in the solicitation. This may include product literature, or other documents, if necessary;
- (5) Terms of any express warranty;
- (6) Price and any discount terms;
- (7) "Remit to" address, if different than mailing address;
- (8) A completed copy of the representations and certifications at FAR 52.212-3;
- (9) Acknowledgment of Solicitation Amendments;
- (10) Past performance information, when included as an evaluation factor, to include recent and relevant contracts for the same or similar items and other references (including contract numbers, points of contact with telephone numbers and other relevant information); and
- (11) If the offer is not submitted on the SF 1449, include a statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation. Offers that fail to furnish required representations or information, or reject the terms and conditions of the solicitation may be excluded from consideration.

(c) *Period for acceptance of offers.* The offeror agrees to hold the prices in its offer firm for 30 calendar days from the date specified for receipt of offers, unless another time period is specified in an addendum to the solicitation.

(d) *Product samples.* When required by the solicitation, product samples shall be submitted at or prior to the time specified for receipt of offers. Unless otherwise specified in this solicitation, these samples shall be submitted at no expense to the Government, and returned at the sender's request and expense, unless they are destroyed during preaward testing.

(e) *Multiple offers.* Offerors are encouraged to submit multiple offers presenting alternative terms and conditions or commercial items for satisfying the requirements of this solicitation. Each offer submitted will be evaluated separately.

(f) *Late submissions, modifications, revisions, and withdrawals of offers.*
 (1) Offerors are responsible for submitting offers, and any modifications, revisions, or withdrawals, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that offers or revisions are due.

(2)(i) Any offer, modification, revision, or withdrawal of an offer received at the Government office designated in the solicitation after the exact time specified for receipt of offers is ``late'' and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(A) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of offers; or

(B) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(C) If this solicitation is a request for proposals, it was the only proposal received.

(ii) However, a late modification of an otherwise successful offer, that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(3) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the offer wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(4) If an emergency or unanticipated event interrupts normal Government processes so that offers cannot be received at the Government office designated for receipt of offers by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation or other notice of an extension of the closing date, the time specified for receipt of offers will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(5) Offers may be withdrawn by written notice received at any time before the exact time set for receipt of offers. Oral offers in response to

oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile offers, offers may be withdrawn via facsimile received at any time before the exact time set for receipt of offers, subject to the conditions specified in the solicitation concerning facsimile offers. An offer may be withdrawn in person by an offeror or its authorized representative if, before the exact time set for receipt of offers, the identity of the person requesting withdrawal is established and the person signs a receipt for the offer.

(g) *Contract award (not applicable to Invitation for Bids).* The Government intends to evaluate offers and award a contract without discussions with offerors. Therefore, the offeror's initial offer should contain the offeror's best terms from a price and technical standpoint. However, the Government reserves the right to conduct discussions if later determined by the Contracting Officer to be necessary. The Government may reject any or all offers if such action is in the public interest; accept other than the lowest offer; and waive informalities and minor irregularities in offers received.

(h) *Multiple awards.* The Government may accept any item or group of items of an offer, unless the offeror qualifies the offer by specific limitations. Unless otherwise provided in the Schedule, offers may not be submitted for quantities less than those specified. The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit prices offered, unless the offeror specifies otherwise in the offer.

(i) *Availability of requirements documents cited in the solicitation.*
 (1)(i) The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29, and copies of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained for a fee by submitting a request to--

GSA Federal Supply Service Specifications Section,
 Suite 8100,
 470 East L'Enfant Plaza, SW, Washington, DC 20407,
 Telephone (202) 619-8925,
 Facsimile (202) 619-8978.

(ii) If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (i)(1)(i) of this provision. Additional copies will be issued for a fee.

(2) The DoD Index of Specifications and Standards (DoDISS) and documents listed in it may be obtained from the--

Department of Defense Single Stock Point (DoDSSP),
 Building 4, Section D,
 700 Robbins Avenue,
 Philadelphia, PA 19111-5094,
 Telephone (215) 697- 2667/2179,
 Facsimile (215) 697-1462.

(i) Automatic distribution may be obtained on a subscription basis.

(ii) Order forms, pricing information, and customer support information may be obtained--

(A) By telephone at (215) 697-2667/2179; or

(B) Through the DoDSSP Internet site at <http://dodssp.daps.mil>.

(3) Nongovernment (voluntary) standards must be obtained from the organization responsible for their preparation, publication, or maintenance.

(j) *Data Universal Numbering System (DUNS) Number*. (Applies to all offers exceeding \$25,000, and offers of \$25,000 or less if the solicitation requires the Contractor to be registered in the Central Contractor Registration (CCR) database. The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" or "DUNS +4" followed by the DUNS or DUNS +4 number that identifies the offeror's name and address. The DUNS +4 is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the offeror to establish additional CCR records for identifying alternative Electronic Funds Transfer (EFT) accounts (see FAR Subpart 32.11) for the same parent concern. If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. An offeror within the United States may contact Dun and Bradstreet by calling 1-866-705-5711 or via the internet at <http://www.dnb.com>. An offeror located outside the United States must contact the local Dun and Bradstreet office for a DUNS number.

(k) *Central Contractor Registration*. Unless exempted by an addendum to this solicitation, by submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the CCR database prior to award, during performance and through final payment of any contract resulting from this solicitation. If the Offeror does not become registered in the CCR database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror. Offerors may obtain information on registration and annual confirmation requirements via the Internet at <http://www.ccr.gov> or by calling 1-888-227-2423 or 269-961-5757.

(l) *Debriefing*. If a post-award debriefing is given to requesting offerors, the Government shall disclose the following information, if applicable:

(1) The agency's evaluation of the significant weak or deficient factors in the debriefed offeror's offer.

(2) The overall evaluated cost or price and technical rating of the successful and the debriefed offeror and past performance information on the debriefed offeror.

(3) The overall ranking of all offerors, when any ranking was developed by the agency during source selection.

(4) A summary of the rationale for award;

(5) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(6) Reasonable responses to relevant questions posed by the debriefed offeror as to whether source-selection procedures set forth in the solicitation, applicable regulations, and other applicable authorities were followed by the agency.

4. EVALUATION -- COMMERCIAL ITEMS (FAR 52.212-2) (JAN 1999)

(a) The Government will award a contract resulting from this solicitation to the responsible offeror whose offer conforming to the solicitation will be

most advantageous to the Government, price and other factors considered. The following factors shall be used to evaluate offers:

See Attachment 3, Technical Evaluation Criteria

For this solicitation, an order will be placed with the offeror that represents the Best Value to the government. Price may not be the determining factor.

(b) *Options.* The Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. The Government may determine that an offer is unacceptable if the option prices are significantly unbalanced. Evaluation of options shall not obligate the Government to exercise the option(s).

(c) A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either party. Before the offer's specified expiration time, the Government may accept an offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.

5. OFFEROR REPRESENTATIONS AND CERTIFICATIONS -- COMMERCIAL ITEMS (FAR 52.212-3) (JAN 2004)

(a) *Definitions.* As used in this provision:

"Emerging small business" means a small business concern whose size is no greater than 50 percent of the numerical size standard for the NAICS code designated.

"Forced or indentured child labor" means all work or service-

(1) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(2) Performed by any person under the age of 18 pursuant to a contract the enforcement of which can be accomplished by process of penalties.

"Service-disabled veteran-owned small business concern"-

(1) Means a small business concern-

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C.

101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern" means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and size standards in this solicitation.

"Veteran-owned small business concern" means a small business concern-

(1) Not less than 51 percent of which is owned by one or more veterans(as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned business concern" means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of the its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

"Women-owned small business concern" means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(b) *Taxpayer identification number (TIN)* (26 U.S.C. 6109, 31 U.S.C. 7701). (Not applicable if the offeror is required to provide this information to a central contractor registration database to be eligible for award.)

(1) All offerors must submit the information required in paragraphs (b)(3) through (b)(5) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the Internal Revenue Service (IRS).

(2) The TIN may be used by the government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.]

(3) Taxpayer Identification Number (TIN).

[] TIN:_____.

[] TIN has been applied for.

[] TIN is not required because:

[] Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct

of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

☐ Offeror is an agency or instrumentality of a foreign government;

☐ Offeror is an agency or instrumentality of the Federal Government;

(4) Type of organization.

☐ Sole proprietorship;

☐ Partnership;

☐ Corporate entity (not tax-exempt);

☐ Corporate entity (tax-exempt);

☐ Government entity (Federal, State, or local);

☐ Foreign government;

☐ International organization per 26 CFR 1.6049-4;

☐ Other _____.

(5) Common parent.

☐ Offeror is not owned or controlled by a common parent:

☐ Name and TIN of common parent:

Name _____

TIN _____

(c) Offerors must complete the following representations when the resulting contract will be performed in the United States or its outlying areas. Check all that apply.

(1) *Small business concern.* The offeror represents as part of its offer that it ☐ is, ☐ is not a small business concern.

(2) *Veteran-owned small business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it ☐ is, ☐ is not a veteran-owned small business concern.

(3) *Service-disabled veteran-owned small business concern.* [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(2) of this provision.] The offeror represents as part of its offer that it ☐ is, ☐ is not a service-disabled veteran-owned small business concern.

(4) *Small disadvantaged business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, for general statistical purposes, that it ☐ is, ☐ is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(5) *Women-owned small business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents that it ☐ is, ☐ is not a women-owned small business concern.

Note: Complete paragraphs (c)(6) and (c)(7) only if this solicitation is expected to exceed the simplified acquisition threshold.

(6) *Women-owned business concern (other than small business concern).* [Complete only if the offeror is a women-owned business concern and did not represent itself as a small business concern in paragraph (c)(1) of this provision.]. The offeror represents that it ☐ is, a women-owned business concern.

(7) *Tie bid priority for labor surplus area concerns.* If this is an invitation for bid, small business offerors may identify the labor surplus areas in which costs to be incurred on account of manufacturing or production (by offeror or first-tier subcontractors) amount to more than 50 percent of the contract price:

(8) *Small Business Size for the Small Business Competitiveness Demonstration Program and for the Targeted Industry Categories under the Small Business Competitiveness Demonstration Program. [Complete only if the offeror has represented itself to be a small business concern under the size standards for this solicitation.]*

(i) *[Complete only for solicitations indicated in an addendum as being set-aside for emerging small businesses in one of the four designated industry groups (DIGs).]* The offeror represents as part of its offer that it ☐ is, ☐ is not an emerging small business.

(ii) *[Complete only for solicitations indicated in an addendum as being for one of the targeted industry categories (TICs) or four designated industry groups (DIGs).]* Offeror represents as follows:

(A) Offeror's number of employees for the past 12 months (check the Employees column if size standard stated in the solicitation is expressed in terms of number of employees); or

(B) Offeror's average annual gross revenue for the last 3 fiscal years (check the Average Annual Gross Number of Revenues column if size standard stated in the solicitation is expressed in terms of annual receipts).

(Check one of the following):

Number of Employees	Average Annual Gross Revenues
<input type="checkbox"/> 50 or fewer	<input type="checkbox"/> \$1 million or less
<input type="checkbox"/> 51-100	<input type="checkbox"/> \$1,000,001-\$2 million
<input type="checkbox"/> 101-250	<input type="checkbox"/> \$2,000,001-\$3.5 million
<input type="checkbox"/> 251-500	<input type="checkbox"/> \$3,500,001-\$5 million
<input type="checkbox"/> 501-750	<input type="checkbox"/> \$5,000,001-\$10 million
<input type="checkbox"/> 751-1,000	<input type="checkbox"/> \$10,000,001-\$17 million
<input type="checkbox"/> Over 1,000	<input type="checkbox"/> Over \$17 million

(9) *[Complete only if the solicitation contains the clause at FAR 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns, or FAR 52.219-25, Small Disadvantaged Business]*

Participation Program-Disadvantaged Status and Reporting, and the offeror desires a benefit based on its disadvantaged status.]

(i) *General.* The offeror represents that either-

(A) It [] is, [] is not certified by the Small Business Administration as a small disadvantaged business concern and identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration (PRO-Net), and that no material change in disadvantaged ownership and control has occurred since its certification, and, where the concern is owned by one or more individuals claiming disadvantaged status, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); or

(B) It [] has, [] has not submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(ii) [] *Joint Ventures under the Price Evaluation Adjustment for Small Disadvantaged Business Concerns.* The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements in 13 CFR 124.1002(f) and that the representation in paragraph (c)(9)(i) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. *[The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: _____.]*

(10) *HUBZone small business concern.* *[Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents, as part of its offer, that--

(i) It [] is, [] is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It [] is, [] is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (c)(10)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. *[The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____.]* Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(d) *Representations required to implement provisions of Executive Order 11246* --(1) Previous contracts and compliance. The offeror represents that --

(i) It [] has, [] has not, participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation; and

(ii) It [] has, [] has not, filed all required compliance reports.

(2) Affirmative Action Compliance. The offeror represents that --

(i) It []has developed and has on file, []has not developed and does not have on file, at each establishment, affirmative action programs required by rules and regulations of the Secretary of Labor (41 CFR parts 60-1 and 60-2), or

(ii) It []has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(e) *Certification Regarding Payments to Influence Federal Transactions* (31 U.S.C. 1352). (Applies only if the contract is expected to exceed \$100,000.) By submission of its offer, the offeror certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with the award of any resultant contract.

(f) *Buy American Act Certificate*. (Applies only if the clause at Federal Acquisition Regulation (FAR) 52.225-1, Buy American Act--Supplies, is included in this solicitation.)

(1) The offeror certifies that each end product, except those listed in paragraph (f)(2) of this provision, is a domestic end product and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. The terms "component," "domestic end product," "end product," "foreign end product," and "United States" are defined in the clause of this solicitation entitled "Buy American Act--Supplies."

(2) Foreign End Products:

LINE ITEM NO.	COUNTRY OF ORIGIN
_____	_____
_____	_____
_____	_____

[List as necessary]

(3) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(g)(1) *Buy American Act - Free Trade Agreement -- Israeli Trade Act Certificate*. (Applies only if the clause at FAR 52.225-3, Buy American Act - Free Trade Agreement Israeli Trade Act, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (g)(1)(iii) of this provision, is a domestic end product and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The terms "component," "domestic end product," "end product," "foreign end product," and "United States" are defined in the clause of this solicitation entitled "Buy American Act--Free Trade Agreement--Israeli Trade Act."

(ii) The offeror certifies that the following supplies are FTA country end products or Israeli end products as defined in the clause of this solicitation entitled "Buy American Act-Free Trade Agreement-Israeli Trade Act":

FTA Country or Israeli End Products:

LINE ITEM NO.	COUNTRY OF ORIGIN
_____	_____
_____	_____
_____	_____

[List as necessary]

(iii) The offeror shall list those supplies that are foreign end products (other than those listed in paragraph (g)(1)(ii) or this provision) as defined in the clause of this solicitation entitled "Buy American Act-Free Trade Agreement-Israeli Trade Act." The offeror shall list as other foreign end products those end products manufactured in the United States that do not qualify as domestic end products.

Other Foreign End Products:

LINE ITEM NO.	COUNTRY OF ORIGIN
_____	_____
_____	_____
_____	_____

[List as necessary]

(iv) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(2) *Buy American Act--Free Trade Agreements--Israeli Trade Act Certificate, Alternate I (Jan 2004)*. If Alternate I to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products as defined in the clause of this solicitation entitled "Buy American Act--Free Trade Agreement--Israeli Trade Act":

Canadian End Products:

Line Item No.

(List as necessary)

(3) *Buy American Act--Free Trade Agreements--Israeli Trade Act Certificate, Alternate II (Jan 2004)*. If Alternate II to the clause at FAR

52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products or Israeli end products as defined in the clause of this solicitation entitled ``Buy American Act-- Free Trade Agreement-Israeli Trade Act'':

Canadian or Israeli End Products:

LINE ITEM NO.	COUNTRY OF ORIGIN
_____	_____
_____	_____
_____	_____

[List as necessary]

(4) *Trade Agreements Certificate.* (Applies only if the clause at FAR 52.225-5, Trade Agreements, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(4)(ii) of this provision, is a U.S.-made, designated country, Caribbean Basin country, or FTA country end product, as defined in the clause of this solicitation entitled "Trade Agreements."

(ii) The offeror shall list as other end products those end products that are not U.S.-made, designated country, Caribbean Basin country, or FTA country end products.

Other End Products

LINE ITEM NO.	COUNTRY OF ORIGIN
_____	_____
_____	_____
_____	_____

[List as necessary]

(iii) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25. For line items subject to the Trade Agreements Act, the Government will evaluate offers of U.S.-made, designated country, Caribbean Basin country, or FTA country end products without regard to the restrictions of the Buy American Act. The Government will consider for award only offers of U.S.-made, designated country, Caribbean Basin country, or FTA country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for such products are insufficient to fulfill the requirements of the solicitation.

(h) *Certification Regarding Debarment, Suspension or Ineligibility for Award (Executive Order 12549).* (Applies only if the contract value is expected to exceed the simplified acquisition threshold.) The offeror certifies, to the best of its knowledge and belief, that the offeror and/or any of its principals--

(1) [] Are, [] are not presently debarred, suspended, proposed for

debarment, or declared ineligible for the award of contracts by any Federal agency; and

(2) ☐ Have, ☐ have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(3) ☐ Are, ☐ are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses.

(i) *Certification Regarding Knowledge of Child Labor for Listed End Products (Executive Order 13126).* [The Contracting Officer must list in paragraph (i)(1) any end products being acquired under this solicitation that are included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, unless excluded at 22.1503(b).]

(1) *Listed End Product*

Listed End Product	Listed Countries of Origin:
_____	_____
_____	_____

(2) *Certification.* [If the Contracting Officer has identified end products and countries of origin in paragraph (i)(1) of this provision, then the offeror must certify to either (i)(2)(i) or (i)(2)(ii) by checking the appropriate block.]

☐ (i) The offeror will not supply any end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product.

☐ (ii) The offeror may supply an end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The offeror certifies that it has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture any such end product furnished under this contract. On the basis of those efforts, the offeror certifies that it is not aware of any such use of child labor.

ATTACHMENT 1

ADDENDUM TO FAR CLAUSE 52.212-4

1. EVALUATION OF OPTIONS (FAR 52.217-5) (JUL 1990)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirements. Evaluation of options will not obligate the Government to exercise the option(s).

2. COMPLIANCE WITH EPA POLICIES FOR INFORMATION RESOURCES MANAGEMENT (EPAAR 1552.211-79) (OCT 2000)

(a) Definition. Information Resources Management (IRM) is defined as any planning, budgeting, organizing, directing, training, promoting, controlling, and managing activities associated with the burden, collection, creation, use and dissemination of information. IRM includes both information itself, and the management of information and related resources such as personnel, equipment, funds, and technology. Examples of these services include but are not limited to the following:

(1) The acquisition, creation, or modification of a computer program or automated data base for delivery to EPA or use by EPA or contractors operating EPA programs.

(2) The analysis of requirements for, study of the feasibility of, evaluation of alternatives for, or design and development of a computer program or automated data base for use by EPA or contractors operating EPA programs.

(3) Services that provide EPA personnel access to or use of computer or word processing equipment, software, or related services.

(4) Services that provide EPA personnel access to or use of: Data communications; electronic messaging services or capabilities; electronic bulletin boards, or other forms of electronic information dissemination; electronic record-keeping; or any other automated information services.

(b) General. The Contractor shall perform any IRM related work under this contract in accordance with the IRM policies, standards and procedures set forth in this clause and noted below. Upon receipt of a work request (i.e. delivery order or work assignment), the Contractor shall check this listing of directives (see paragraph (d) for electronic access). The applicable directives for performance of the work request are those in effect on the date of issuance of the work request.

(1) IRM Policies, Standards and Procedures. The 2100 Series (2100-2199) of the Agency's Directive System contains the majority of the Agency's IRM policies, standards and procedures.

(2) Groundwater Program IRM Requirement. A contractor performing any work related to collecting Groundwater data; or developing or enhancing data bases containing Groundwater quality data shall comply with EPA Order 7500.1A - Minimum Set of Data Elements for Groundwater.

(3) EPA Computing and Telecommunications Services. The Enterprise Technology Services Division (ETSD) Operational Directives Manual contains procedural information about the operation of the Agency's computing and telecommunications services. Contractors performing work for the Agency's National Computer Center or those who are developing systems which will be

operating on the Agency's national platforms must comply with procedures established in the Manual. (This document may be found at: <http://basin.rtpnc.epa.gov:9876/etsd/directives.nsf>.)

(c) Printed Documents. Documents listed in (b)(1) and (b)(2) may be obtained from:

U.S. Environmental Protection Agency
Office of Administration
Facilities Management and Services Division
Distribution Section
Mail Code: 3204
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
Phone: (202) 260-5797

(d) Electronic Access. Electronic access. A complete listing, including full text, of documents included in the 2100 Series of the Agency's Directive System is maintained on the EPA Public Access Server on the Internet at <http://epa.gov/docs/irmpoli8/>.

3. TECHNICAL QUESTIONS (EP 52.215-110) (APR 1984)

Offerors must submit all technical questions concerning this solicitation in writing to the contract specialist. EPA must receive the questions no later than 7 calendar days after the date of this solicitation. EPA will answer questions which may affect offers in an amendment to the solicitation. EPA will not reference the source of the questions.

4. OPTION FOR INCREASED QUANTITY--FIXED-PRICE CONTRACT (EP 52.217-982) (APR 1984)

(a) The Government may increase the quantity of work called for under this contract as follows:

Optional Item Number	Description	Optional Quantity Amounts	Unit Price	Extended Price	Delivery Date
0001	Option to purchase additional, complete systems in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0002	Option to purchase "Expansion Kits" in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0003	Option for pressure transducers with all associated cables in accordance with the attached SOW.	4	\$_____	\$_____	To be Determined

0004	Option for units of charge amplification for at least 4 pressure transducers, with all associated cables in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0005	Option for crankshaft encoders with all associated cables in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0006	Option for encoder signal conditioners with all associated cables in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0007	Option for A/D IO modules of at least eight I/O channels per module with all associated cables in accordance with the attached SOW.	2	\$_____	\$_____	To be Determined
0008	Option to purchase additional training modules in accordance with the attached SOW.	3	\$_____	\$_____	To be Determined
0009	Extended Warranty for 2 nd Year after Acceptance Date in accordance with the attached SOW.	3	\$_____	\$_____	To be Determined
0010	Extended Warranty for 3 rd Year after Acceptance Date in accordance with the attached SOW.	3	\$_____	\$_____	To be Determined
0011	Extended Warranty for 4 th Year after Acceptance Date in accordance with the attached SOW.	3	\$_____	\$_____	To be Determined
0012	Extended Warranty for 5 th Year after Acceptance Date in accordance with the attached SOW.	3	\$_____	\$_____	To be Determined

(b) The Government may exercise an option by written notice to the Contractor within the following time periods:

<u>Optional Item</u>	<u>Time Period for Exercising Option</u>
0001	Within 18 Months After Contract Award
0002	Within 18 Months After Contract Award
0003	Within 18 Months After Contract Award
0004	Within 18 Months After Contract Award
0005	Within 18 Months After Contract Award
0006	Within 18 Months After Contract Award
0007	Within 18 Months After Contract Award
0008	Within 18 Months After Contract Award
0009	Within 30 Days of Expiration of Previous Warranty Period
0010	Within 30 Days of Expiration of Previous Warranty Period
0011	Within 30 Days of Expiration of Previous Warranty Period
0012	Within 30 Days of Expiration of Previous Warranty Period

5. CONTRACT ADMINISTRATION REPRESENTATIVES (EP 52.242-100) (AUG 1984)

Project Officer(s) for this contract:

Project Officer:

TO BE IDENTIFIED AT TIME OF CONTRACT AWARD

Contract Specialist(s) responsible for administering this contract:

Administrative Contracting Officer:

TO BE IDENTIFIED AT TIME OF CONTRACT AWARD

ATTACHMENT 2

STATEMENT OF WORK

Statement of Work

Engine Combustion Cycle Characterization and Analysis System for EPA NVFEL

Requirements, Functional Specifications, Performance Criteria, and Acceptance Tests

U. S. Environmental Protection Agency
National Vehicle and Fuel Emissions Laboratory
2565 Plymouth Road
Ann Arbor, Michigan 48105

Table of Contents

1.0 Overview and General Requirements

- 1.1 References
- 1.2 Background and Procurement Overview
- 1.3 General Description of Test Site
- 1.4 Safety, Health, and Environmental Provisions
- 1.5 Electrical Requirements
- 1.6 Project Management and Schedule of Deliverables

2.0 Technical Requirements for the Engine Combustion Cycle Characterization and Analysis System

- 2.1 Functional Requirements for the Engine Combustion Cycle Characterization and Analysis System
- 2.2 System Hardware and Software

3.0 Acceptance Testing

4.0 Documentation Requirements

5.0 Warranty

6.0 Training

7.0 Options

Figures

Figure 1. Heavy Duty Cell 5 Layout

Appendices

Appendix A. Abbreviations and Terms

Appendix B. Schedule of Deliverables

1.0 Overview and General Requirements

Section 1 of the Statement of Work (SOW) provides an overview of the scope of the project and general requirements of the equipment being procured.

Specific references, which provide important technical information or guidance, are listed in Section 1.1. Where noted, the requirements of some documents are incorporated by reference as requirements of this Statement of Work.

Background information is presented in Section 1.2. A general description of the test site where the equipment procured by this contract is to be installed, is presented in Section 1.3. Other general requirements are covered in the balance of Section 1, including requirements for project management.

Contract deliverables and specific requirements are addressed in detail in subsequent sections of the Statement of Work.

Definitions of the acronyms used in this document are provided in the Appendix A.

1.1 References

- 1.1.1 Code of Federal Regulations 40 CFR, Subchapter C, Part 86 "Control of Emissions From New and In-Use Highway Vehicles and Engines," Subparts D, N,

CFR materials may be found at
<http://www.access.gpo.gov/ecfr/>

- 1.1.2 NFPA 70, National Electrical Code (www.nfpa.org)
All references shall be the most current available as of the date of this contract.

- 1.1.3 EPA Facilities Manual dated February, 1998
Volume 1 (A/E & Planning Guidelines) and
Volume 4 (4844 - Facility Safety, Health and
Environmental Management Manual)

1.2 Background and Procurement Overview

- 1.2.1 As part of the Clean Air Act and its Amendments, a variety of new emissions regulations have been implemented for new heavy duty engines. The 2007 Heavy Duty Engine Rule will require test systems that are integrated as sophisticated and adaptable emission measurement systems. The EPA NVFEL has undertaken a comprehensive program to implement new and refined test

systems to enhance the capabilities to conduct low level gaseous and particulate emissions testing, of the highest precision and accuracy, on a broad range of engines.

This Statement of Work describes requirements for an Engine Combustion Cycle Characterization and Analysis System to be installed in a new heavy duty engine test cell, HD Cell 5, located in room 423 at NVFEL. EPA seeks to purchase this System to investigate both potential causes of non-compliance of in-use engines, and to explore opportunities for further advances in the emissions and energy efficiency related to a variety of types of internal combustion engines.

- 1.2.2 All general requirements listed in this Statement of Work apply to all equipment purchased under this contract.
- 1.2.3 Reserved
- 1.2.4 For the equipment specified, the contractor shall have total system responsibility, which shall include all phases of the project, design/configuration, assembly, integration, quality assurance, delivery to EPA-NVFEL, installation, calibration, commissioning, acceptance testing, documentation and training of EPA staff.

1.3 General Description of Test Site

1.3.1 Heavy Duty Engine Test Cell 5 Site Overview

This test site is being developed in order to test low-emission heavy-duty engines equipped with advanced exhaust emission control systems, in accordance with regulatory requirements. This capability will also be used to support transient and steady state emissions testing of heavy duty engines that is of a more experimental nature.

The engines that will be tested will typically be those designed for on-highway truck applications, or non-road applications, such as agricultural equipment. The engines tested in this test cell will generally have rated power values from 100 to 400 HP, but engines as small as 75 HP and as large as 600 HP may be tested from time to time. The systems purchased under this contract shall support all Federal and European heavy duty certification procedures and shall be able to support other configurable procedures for research purposes for engines ranging from 75 to 600 HP.

This test site will have a structural mezzanine above the room ceiling panels that is capable of supporting

test equipment and dynamometer power drives. The site will house a nominal 600 horsepower AC flux vectored single-ended dynamometer and test cell controller/data acquisition system provided under a separate contract with Schenk Pegasus Corporation. The emissions sampling and analysis equipment will be provided under a separate contract to Horiba Instruments.

- 1.3.2 The test cell shall be considered to be a NFPA Class I, Division 2 location for the purposes of equipment design and operation.

1.4 Safety, Health, and Environmental Provisions

- 1.4.1 Providing for a safe working environment is the highest priority in all EPA equipment purchases and installation activity. The contractor shall abide by NEC, OSHA, BOCA, and NFPA codes and the EPA Facility Safety manual, where applicable, to create a safe system and work environment.
- 1.4.2 Significant risk factors such as noise, ventilation of toxic gases, heated surfaces, electrical shock, and safety interlocks to prevent accidental errors shall be considered, and control measures to ensure the safety of operations and maintenance personnel shall be implemented wherever feasible.
- 1.4.3 As required by OSHA, all equipment shall be designed to provide for straightforward lockout protection in accordance with OSHA regulations. Written lockout instructions, in hard copy and electronic formats, shall be provided as part of the "as installed" documentation package.
- 1.4.4 Noise or vibration from equipment installed as part of this contract shall not penetrate the building or cause adverse affects on other equipment in the facility. Sound dampening/suppression devices and/or materials shall be installed as needed to limit noise levels to 60db at 10 feet from any devices to be located in the control rooms, 70db at 10 feet from any devices to be located in the equipment rooms 75db at 10 feet for devices located in the test cells, except as otherwise noted.
- 1.4.5 The contractor shall consider energy efficiency in all component selection, system design and operational strategies. Energy efficient equipment, such as those with the "Energy Star" designation shall be utilized when possible.
- 1.4.6 The contractor shall take steps to minimize the generation and release of harmful materials to the

environment in all component selection, system design, and operational strategies and installation requirements.

- 1.4.7 The contractor shall provide the NVFEL Project Officer with a complete list of chemicals, if any, to be utilized during installation and commissioning operations at NVFEL, and their associated Material Safety Data Sheets (MSDS), at least two weeks prior to system installation.

1.5 Electrical Requirements

- 1.5.1 Reserved
- 1.5.2 The Engine Combustion Cycle Characterization and Analysis System shall operate on 120V, 1 phase, 60 Hz, utility grade power, or clean power if necessary.
- 1.5.3 All equipment shall be installed in accordance with the 2002 edition of NFPA 70, National Electrical Code and required local codes.
- 1.5.4 Equipment design and installation shall permit operation in compliance with Occupational Safety & Health Administration (OSHA) Standards Part Number 1910. Electrical equipment shall comply with Part 1910 Subpart S.
- 1.5.5 Reserved
- 1.5.6 Equipment design and installation shall provide energy-isolating devices required for equipment operators to follow the OSHA rule on the Control of Hazardous Energy (Lockout/Tagout) of Title 29 of the Code of Federal Regulations (29 CFR) Part 1910.147.
- 1.5.7 All electrical cables shall be isolated from gas lines. All equipment installed in the test cell must meet the hazardous location requirement of Class 1, Division 2, and Group D category.
- 1.5.8 The contractor is responsible for providing and installing all power circuits disconnects, transformers, circuit protection devices, and associated hardware required to interface with EPA provided power panels of paragraph 1.5.2.
- 1.5.9 All power receptacles shall be heavy duty, industrial grade.
- 1.5.10 All cables external to equipment cabinets with voltages over 50V (AC or DC) shall be run in metal conduit or other EPA approved raceway.

- 1.5.11 Control and signal cables shall be isolated from power cables. All signal cabling shall not be adversely affected due to capacitive or inductive interference.
- 1.5.12 All Control and signal cables/wires shall be permanently labeled with to/from and signal/function name information that corresponds with the provided electrical schematic.
- 1.5.13 All crimp or compression type connections shall use only the component manufacturer's approved crimp tools and shall follow the component manufacturer's termination instructions.
- 1.5.14 Discrete digital input/output (I/O) channels shall be 0 to 5 volt TTL level (unless required to be otherwise) and shall be optically isolated from their source.
- 1.5.15 Reserved
- 1.5.16 Analog I/O shall support both ± 5 VDC and ± 10 VDC, 4 to 20mA, or pulse train outputs, with appropriate signal conditioning and isolation.
- 1.5.17 The contractor shall provide complete electrical schematics and wire lists in their final documentation package.
- 1.5.18 All electrical installations shall be performed by a licensed electrician.

1.6 Project Management and Schedule of Deliverables

- 1.6.1 The contractor shall manage the project to ensure on-time completion and efficient interaction with EPA during all project phases. The contractor shall develop a preliminary project plan for review with EPA at a project kick off meeting. The Project Management plan shall indicate the contractor's project manager, contact information, and the project time line.
- 1.6.2 The project management plan should also include the submissions, milestones and events to be completed no later than the dates indicated on the Schedule of Deliverables. Alternate dates for intermediate milestones may be proposed at the Project Kickoff meeting as long as the end date of the contract is not affected. All modifications must be approved, in writing, by the EPA Contracting Officer.
- 1.6.3 General system acceptability shall be demonstrated during an off-site acceptance process. Equipment shipment to EPA shall not occur until this requirement is met. The contractor shall have responsibility for

preparing a report thoroughly documenting all quality assurance activities and acceptance results.

- 1.6.4 The contractor shall provide on-site supervision of all installation, commissioning and acceptance activities. All contractor personnel shall receive 1-hour briefing by EPA personnel on specific safety and security issues. All contractor personnel and subcontractor personnel must comply with EPA/NVFEL safety and security measures while working at NVFEL.

2.0 Technical Requirements for the Engine Combustion Cycle Characterization and Analysis System

2.1 Functional Requirements for the Engine Combustion Cycle Characterization and Analysis System

- 2.1.1 The Engine Combustion Cycle Characterization and Analysis System shall be of proven design, in widespread use in the engine testing industry. The System shall utilize multiple real-time processors, or equivalent strategies, to achieve maximum computational throughput. The System shall include all hardware and software to provide the following features and functionality.

- 2.1.2 The Engine Combustion Cycle Characterization and Analysis System shall be designed, manufactured and configured to test and analyze engine combustion processes by measuring the engine cylinder pressure waveforms and crankshaft rotation signals and acquiring, calculating, recording and displaying combustion data at sufficient speed to allow true real time functioning, including the capability of real-time functioning as part of an engine control system.

"Real time" shall be taken to mean that all calculations for the current engine cycle are complete before the data acquisition for the next cycle is completed. Post processing shall not be required to get combustion results, however a complete array of post processing functions shall be available to calculate and analyze parameters not selected at time of test. The System shall record and store at least 64 megasamples (128 Mbytes) of raw and/or calculated combustion parameters for post test analysis.

- 2.1.3 The Engine Combustion Cycle Characterization and Analysis System shall be implemented to work with the following engine types and characteristics:

- Diesel, common rail injection
- Diesel, unit injection
- Spark ignited

- HCCI
 - Variable displacement
 - 2 or 4-cycle
 - Up to 12 cylinders
 - Up to five injection events per cycle
 - Unequal firing intervals
- 2.1.4 The Engine Combustion Cycle Characterization and Analysis System shall compute, log and display up to 100 combustion parameters in real-time for each cylinder, for contiguous combustion cycles.
- 2.1.5 At a minimum, the Engine Combustion Cycle Characterization and Analysis System shall compute, log and display the following combustion parameters in real-time, for each cylinder for contiguous combustion cycles, for a user specified number of cycles:
- a. Indicated Mean Effective Pressure (IMEP).
 - b. Low IMEP
 - c. Pumping Mean Effective Pressure (PMEP).
 - d. Net Mean Effective Pressure (NMEP).
 - e. Misfires including IMEP, Percent Misfire, and IMEP Total Misfire.
 - f. Peak pressure, maximum rate of pressure rise and crank angle location.
 - g. Polytropic coefficients of expansion and compression.
 - h. Upper, lower, and average pressure envelopes.
 - i. Injector start and duration (both crank angle and time) for up to five injections per cylinder, per cycle with the ability to upgrade as technology advances.
 - j. Mass Fraction Burn and Mass Burn Rate.
 - k. Engine averages of IMEP, NMEP, peak pressure, max rate of pressure rise, and their crank angle locations.
 - l. Knock, intensity and peak crank angle location.
 - m. Heat release.
- 2.1.6 The Engine Combustion Cycle Characterization and Analysis System shall have the ability to quantify knock on a cylinder-by-cylinder and cycle-by-cycle basis. Cylinder pressure signals shall be filtered to isolate the knock frequencies. Intensity and peak value analysis shall be performed for each engine cycle. Simultaneous acquisition of standard combustion data shall allow for cycle-by-cycle correlation.
- 2.1.7 Reserved
- 2.1.8 The Engine Combustion Cycle Characterization and Analysis System shall compute, in real-time, the minimum, maximum, mean, standard deviation, and coefficient of variation of combustion parameters using moving window analysis. The system shall allow for the

calculation of statistics for each observed and real-time calculated parameter.

- 2.1.9 The Engine Combustion Cycle Characterization and Analysis System shall measure and resolve engine crank angle to 0.1 degrees, or better. The System shall provide for data decimation, allowing monitoring and/or recording of raw signals at different encoder resolutions in different parts of the engine cycle. The System shall allow for either time-based or crank angle-based data collection and parameter calculation. The system shall be either manually or externally triggered to begin data collection and computation, and shall also include a feature to begin data collection and computation immediately after sensing the first encoder pulse.
- 2.1.10 The Engine Combustion Cycle Characterization and Analysis System shall display calculated parameters, as they occur, in both graphical and text formats. The System display utility shall include strip charts, on-line scope traces, data display boxes and tables, some form of virtual meters or level indicators and box plots or similar statistically-based displays, of observed "raw" signals and calculated parameters. Displays shall include those that are both encoder-based or time-based, and both linear pressure-volume or Log P-Log V.
- 2.1.11 The Engine Combustion Cycle Characterization and Analysis System shall include real time digital and analog outputs of user selectable parameters for use with external devices such as oscilloscopes, strip charts or engine controllers.
- 2.1.12 The Engine Combustion Cycle Characterization and Analysis System shall include a highly user friendly test set up, control and data handling utilities including, at a minimum,
- Context sensitive help.
 - An engineering unit conversion utility which allows for display of data in any appropriate units.
 - User defined limits
 - A display utility which allows the user to setup and modify displays from a full set of graphical display elements.
 - A data viewing utility which provide plots of all collected data for immediate review.
- 2.1.13 Reserved
- 2.1.14 Data shall be able to be converted to file formats compatible with Lotus, PCMATLAB, and ASCII.

- 2.1.15 The Engine Combustion Cycle Characterization and Analysis System shall interface with both of the two most commonly-used engine test systems at EPA, the "Stars" test cell control and data acquisition system produced by Schenck Pegasus Corporation® and the "VXIn" test cell control and data acquisition system produced by MTS®. This interface shall include the transfer of any and all calculated combustion parameters at up to 100 Hz, and the ability of the test cell controller to trigger the combustion analysis system data logging and computation function during testing.
- 2.1.16 All components, except those which must reside in the test cell, shall be 19" rack mountable. A suitable 19" equipment rack will be provided by EPA.

2.2 System Hardware and Software

- 2.2.1 The System shall consist of a Microsoft® Windows-based User Interface Computer and a separate Combustion Analysis Control and Input System. Other configurations may be acceptable, if all performance and functional requirements of this Statement of Work are met.
- 2.2.2 The User Interface Computer shall be configured as follows. In some cases specific brands/models are specified so that this computer may be supported by NVFEL staff and internally stocked replacement parts. If specified component models are no longer available, they may be substituted with those models the original manufacturer certifies to be identical or compatible replacement parts.

All visible component cabinets or panels shall be black in color.

- 19" Rack-mountable case, with filters and handles
- Maximum case size of 10" wide x 27" deep and 7" high
- Minimum 350 watt power supply
- Minimum of (1) 3½ inch bay for floppy drive
- Minimum of (2) 5¼ inch bays
- Power switch, floppy drive and 5¼ inch bays behind a lockable front door
- (2) front-mounted USB connectors
- Intel® motherboard with a minimum of (5) PCI slots
- Intel® P4, 3 GHz processor
- 1 Gbyte dual channel DDR 400 SD RAM with ECC
- Minimum 800 MHz front side bus
- Intel® 875P and ICH5R chipsets

- 8x AGP
- USB 2.0
- (2) Seagate® 73Gbyte Ultra SCSI 10K, U320, hard disk drives
- Adaptec® 39320-R RAID hard disk controller
- 1.44 Mbyte floppy disk drive, 3½ inch FDD
- (2) 3com® 10,100,1000 network cards (PCI)
- Microsoft® Windows XP Professional operating system - full installation
- Operating system installed on 8 Gbyte partition NTFS, with remaining disk space partitioned for (1) extended partition (D) drive NTFS
- Microsoft® Office XP Professional, full installation
- 19" flat panel LCD monitor SXGA resolution, with rack mounting hardware

2.2.3 The Engine Combustion Cycle Characterization and Analysis System shall nominally consist of the following hardware, and shall also include all software/firmware required to make each system component fully functional:

- a. Analog Input Devices sufficient for a minimum of 16 Analog to Digital (A/D) channels
- b. A minimum of four (4) piezoelectric pressure transducers and associated charge amplification components. Preference will be given to systems that allow for remotely locating the charge amplification modules while still achieving optimum signal to noise characteristics.
- c. 19" rack-mountable interface panels
- d. Encoder, and encoder signal conditioner suitable for achieving 0.1 degrees, or better, resolution of crankshaft angle
- e. All necessary interconnection cables, mounting hardware, and other hardware required for installation and use
- f. 16 TTL inputs
- g. 8 slow-speed A/D inputs
- h. 8 D/A outputs that can be scaled to any numerical system parameter
- i. 8 TTL outputs that may associated with any boolean parameter
- j. Up to 5 real-time floating point processors
- k. Up to 64 Msamples of raw data storage and lock mode decimation of raw data

2.2.4 The Engine Combustion Cycle Characterization and Analysis System shall perform all real-time calculations and data logging. It shall also provide and implement communication via an Ethernet port to interface to the Graphical User Interface (GUI)

resident on the User Interface PC. The Combustion Analysis Control and Input System shall be readily expandable to a total of 48 channels of high-speed external analog input.

- 2.2.5 The Analog Input Devices shall accept analog signals and convert them to digital values at a processing rate sufficient to meet the performance requirements of this Statement of Work. The values shall be simultaneously used for real-time calculation of combustion parameters and recorded for future additional analysis.

The Analog Input Devices shall have, at a minimum, the following additional features:

- a. A 12-bit, 1 MSample/channel conversion rate.
 - b. Programmable gains for each channel.
 - c. Self-calibration and diagnostic functions.
 - d. Compatibly with EPA standard charge amplifiers described below.
- 2.2.6 The Engine Combustion Cycle Characterization and Analysis System shall be fully compatible with Kistler® Charge Amplifiers, Type 5010B, and Kistler® Pressure Transducers, which both are EPA/NVFEL standard components. Neither the pressure transducers or the charge amplifiers provided by this contract need to be the referenced Kistler® components.
- 2.2.7 The Engine Combustion Cycle Characterization and Analysis System shall include an encoder and encoder signal conditioner. The encoder signal conditioner shall provide an interface between the encoder and the Engine Combustion Cycle Characterization and Analysis System with excellent signal stability characteristics, and also provide troubleshooting functions to help resolve encoder signal problems.
- 2.2.8 Reserved
- 2.2.9 The contractor shall provide User Interface Computer software which includes a Graphical User Interface (GUI). An Ethernet connection shall provide communication with the Engine Combustion Cycle Characterization and Analysis System. At a minimum, the GUI shall meet the following requirements:
- a. Compatible with Microsoft® Windows XP Professional operating system
 - b. Flexible screen configuration
 - c. Context sensitive help
 - d. User displays which include virtual gauges, bars, text box data values, arrays, strip charts, virtual oscilloscopes and box plots of real time data
 - e. Display elements that indicate min, max and out of limit conditions

- 2.2.10 At a minimum the Engine Combustion Cycle Characterization and Analysis System software shall provide for the following data acquisition, processing and storage:
- a. Real-Time calculation of results with statistics
 - b. Calculation of result envelopes
 - c. Ability to save raw data as either pegged or unpegged
 - (user selectable)
 - d. Save processed pressure curves (trace calculations)
- 2.2.11 Reserved
- 2.2.12 The contractor shall work cooperatively with a third party to provide all information necessary to develop a driver for communication between the Engine Combustion Cycle Characterization and Analysis System and the Test Cell Controller and Data Acquisition Systems ("Stars" and "VXIIn") to transfer real time data at user selectable rates up to 100 Hz. Calculated combustion variables shall be transmitted to the Test Cell Controller and Data Acquisition System as if they were individual channels of data. The communication protocol and command set shall also enable remote triggering of the Engine Combustion Cycle Characterization and Analysis System data logging and computation via Test Cell Controller and Data Acquisition System commands.
- 2.2.13 The contractor shall provide Engine Combustion Cycle Characterization and Analysis System software updates, as available, for two (2) years after system acceptance.

3.0 Acceptance Testing

- 3.1 Prior to shipment to EPA, the contractor shall thoroughly test the system and verify that the system has been built and operates according the requirements of this Statement of Work. All checks of measurement accuracy shall be made with standards and devices that have been calibrated to a known uncertainty, in a manner that is traceable to NIST, or equivalent, and documented as such. The contractor shall include copies of all such certified calibrations as part of their acceptance report package.
- 3.2 All acceptance testing shall be the responsibility of the contractor. The contractor, at the contractor's expense shall rectify all non-compliant conditions. If repairs or changes are made, the contractor shall repeat acceptance testing to demonstrate the acceptable quality of the final product, to the extent

- necessitated by the scope of the repair or change.
- 3.3 At its discretion EPA shall observe the acceptance process. The Project Officer may waive the opportunity to observe the acceptance process.
 - 3.4 Upon completion of contractor-site acceptance testing, the contractor shall deliver a written summary of the acceptance results, findings and recommendations to the Project Officer for shipment approval.
 - 3.5 The contractor shall reverify correct system operation once the equipment has been delivered, installed and commissioned at EPA.
- 4.0 Documentation Requirements**
- 4.1 The contractor shall provide complete documentation for the Engine Combustion Cycle Characterization and Analysis System, including mechanical layout, wire lists, color coding, electrical schematics, data communication protocols, and operating and repair manuals. Documentation shall be in the English language.
 - 4.2 For each system a minimum of two (2) sets of each document shall be provided and when available, the contractor shall also provide the documentation in computer readable user modifiable form. Microsoft® Word, WordPerfect, AutoCADD, Microsoft® Visio and Microsoft Excel are acceptable file formats as well as any that are compatible with standard translator/conversion tools provided by those applications.
 - 4.3 The contractor shall provide a recommended set of detailed calibration, verification and preventative maintenance procedures, schedules, and recommended spare parts inventory.
 - 4.4 The contractor shall provide a listing of all system warning and alarm messages, with full explanation as to their exact meaning, impact and action required.
 - 4.5 The contractor shall provide a complete "Lock-Out/Tag-Out" instruction for equipment requiring energy-isolating devices in accordance with the OSHA rule on the Control of Hazardous Energy (Lockout/Tagout) of Title 29 of the Code of Federal Regulations (29 CFR) Part 1910.147.
 - 4.6 The contractor shall supply a list of consumable items with recommended supply sources, as well as a recommended parts list for routine maintenance

operations.

- 4.7 The contractor shall supply a complete parts list(s) including the model and/or part number designations of all component parts, as well as the address, phone number(s), and point(s) of contact for all subcontractors' and vendor component parts.

5.0 Warranty

- 5.1 The contractor shall warranty all parts, labor, control systems, and equipment for the performance and functionality of their systems for a minimum of one year after formal EPA system acceptance and approval.
- 5.2 This warranty shall provide for on-site, cost-free repair or replacement failed components, to include material, labor and all associated expenses. Contractors shall be on-site in response to service call within two (2) work days. This warranty shall not reduce any requirement in this Statement of Work.

6.0 Training

- 6.1 Complete training in the set up, use, troubleshooting and maintenance of the Engine Combustion Cycle Characterization and Analysis System for up to four people shall be included with each System purchased under this contract. It is expected that this training will be a minimum of 32 hours. The training shall be held either at EPA/NVFEL or the contractor's facility, at the Governments option.

7.0 Options

- 7.1 The following are options to be offered with the base system. All general requirements shall apply to option features.
- 7.2 The contractor shall offer an option to purchase up to two additional, complete systems. All base system requirements shall apply to the optional systems.
- 7.3 The contractor shall offer an option for up to two "Expansion Kits" which shall consist of all components, mounting hardware, cabling, connectors and software, as required, to increase the measurement capability of the base system, and optional systems, from four cylinders of instrumentation to eight cylinders of instrumentation .
- 7.4 The contractor shall offer an option to purchase additional quantities of the following items that have been included in the Base system. The quantities specified are maximum amounts:

- a. (4) pressure transducers with all associated cables
 - b. (2) units of charge amplification for at least (4) pressure transducers, with all associated cables
 - c. (2) crankshaft encoders with all associated cables
 - d. (2) encoder signal conditioners with all associated cables
 - e. (2) A/D IO modules of at least eight I/O channels
- per module with all associated cables

All separate option components shall come with standard commercial parts warranties.

- 7.5 The contractor shall offer an option for an extended service contract, renewable every year for a period of 4 years from the date of acceptance, for the base system and each complete optional system. Contractors shall be on-site in response to service call within two (2) work days.
- 7.6 The contractor shall offer an option for up to three additional training modules as specified in Section 6.1.

Figures

Figure 1. Heavy Duty Cell 5 Layout

Appendices

Appendix A. Abbreviation and Terms

Appendix B. Schedule of Deliverables

Appendix A

Abbreviations and Terms

BOCA	-	Building Officials' Code of America
CFR	-	Code of Federal Regulations
EPA	-	Environmental Protection Agency
FM	-	Factory Mutual
FTP	-	Federal Test Procedure
GUI	-	Graphical User Interface
HZ	-	Hertz (per second)
IFC	-	InterFace Computer
ISO	-	International Standards Organization
LNS	-	Laboratory Network System
MSDS	-	Material Safety Data Sheets
NEC	-	National Electrical Codes
NEMA	-	National Electrical Manufacturers Association
NFPA	-	National Fire Prevention Association
NIST	-	National Institute of Standards and Technology
NVFEL	-	National Vehicle and Fuels Emissions Laboratory
OSHA	-	Occupational Safety and Health Administration
PC	-	Personal Computer
P/N	-	Part Number
POC	-	Point of Contact
RFP	-	Request for Proposal
SOW	-	Statement of Work
ULEV	-	Ultra-Low Emitting Vehicle
VAC	-	Voltage w/ Alternating Current
VDC	-	Voltage w/ Direct Current

Appendix B

Schedule of Deliverables

Dates shown are completion deadlines relative to the contract award date or exercise option date. Where dates are not shown, the contractor shall propose appropriate dates at the Project Kickoff Meeting. All days are calendar days.

Project Kickoff Meeting and Site Survey (21 days)
Status summary submitted to Project Officer every two weeks until final acceptance of system by EPA.
Design submission and Review Meeting (45 days)
EPA design approval
Submission of acceptance plan for approval
System fabrication
Contractor-site acceptance testing completed (115 days)
Submission of summary report of contractor-site acceptance results and Review Meeting
Submission of Installation Material Data Safety Information to EPA for approval, as appropriate
EPA authorization to ship
EPA-Provided 1-hour contractor safety orientation
Equipment delivery to EPA (125 days)
Equipment installation
Equipment commissioning
Final quality verification completed
Training and Submission of all documentation (150 days)
Final EPA approval

ATTACHMENT 3

TEHNICAL EVALUATION CRITERIA

Technical Evaluation Criteria**Engine Combustion Cycle Characterization and Analysis
System for EPA NVFEL****Evaluation - Commercial Items (FAR 52.212-2) (Jan 1999)**

- A. The Government will award a contract resulting from this solicitation to the responsible offeror whose proposal conforming to the solicitation will be most advantageous to the Government, price and other factors considered. Evaluation of offers shall include all requirements of the Statement of Work (SOW), including Options. An offer must include the minimum requirements of the SOW, including Options, to be considered for award. The technical criteria set forth below shall be used to evaluate offers. In addition, price will be a consideration.

Offerors shall provide information to demonstrate/substantiate that the proposal meets the minimum requirements set forth below.

Offerors shall:

1. Demonstrate that the proposal meets all the minimum requirements of the Government and fulfills EPA's needs as set forth and described in the Statement of Work and Technical Proposal Instructions. Offerors shall discuss all aspects of the Statement of Work requirements. In addition proposals shall clearly address how the proposal meets or exceeds requirements in the following critical areas:
 - a. Integration and performance of system to provide a safe, effective, and workable system, including ease of use, clarity of display and high speed data functions.
 - b. The ability of system to fully function as a real-time system. The ability to simultaneously acquire raw data and calculate all combustion parameters on continuous, contiguous, combustion cycles while maintaining real time display and communication requirements.
 - c. Resolution of crank angle to 0.1 degrees, or better.
 - d. Communication/control interface with the Test Cell Control and Data Acquisition Systems.
 - e. Physical configuration factors, especially as it relates to usability, maintainability, and performance. There is a preference for systems that allow for remotely locating the charge amplification modules while still achieving optimum signal to noise characteristics. (Preference set forth in Section 2.2.3. of the SOW are considered more advantageous)
 - f. Demonstration in the Project Management Plan of how the requirements identified in the SOW will be satisfied to effectively and timely deliver and install required system.
2. Provide information on previous work that demonstrates experience with fabrication and installation of similar equipment to that described in the SOW. Such information may include drawings, photographs, technical data or papers, catalogs, project management information, etc.
3. Offeror's past performance with requirements of a similar nature with regard to product quality and timeliness of delivery shall be evaluated.

- B. Responses to the above factors shall be evaluated on the following

scale:

Unacceptable:	Does not meet all requirements of the SOW.
Acceptable:	Meets all minimum requirements of the SOW.
Superior:	Exceeds the Government's minimum requirements.

- C. After the responses have been evaluated against the factors above, an order is expected to be placed with the offeror that represents the Best Value to the government. Price may not be the determining factor. Best and final offers should be provided. Discussions may be conducted as necessary at the government's discretion after receipt of proposals.
- D. A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either party. Before the offer's specified expiration time, the Government may accept an offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.

ATTACHMENT 4

TECHNICAL PROPOSAL INSTRUCTIONS

Technical Proposal Instructions**Engine Combustion Cycle Characterization and Analysis System for EPA NVFEL****General Requirements:**

Offerors shall submit one original and three (3) copies of technical proposals.

In its proposal, offerors shall address all minimum requirements set forth in the Statement of Work (SOW), and also explain any way their proposed solutions would enhance the performance of the delivered Engine Combustion Cycle Characterization and Analysis System beyond minimum requirements. Proposals shall be structured in a manner that clearly and specifically addresses each individual requirement, in the same order and general format in which they are presented in the SOW.

Proposals shall include a list of system electrical requirements, including specific requirements for voltage, amperage, phase and any requirements for clean power. Any unusual requirements for electrical power, power loads exceeding 1 KW, or equipment grounding shall be identified. Proposals shall also include a list of other facility requirements, if any.

Proposals shall include complete warranty provisions and recommended maintenance and calibration intervals.

Specific Requirements:

1. Proposals shall address all minimum requirements set forth in them SOW, and also explain any way its proposed solutions would enhance the performance of the delivered Engine Combustion Cycle Characterization and Analysis System beyond the minimum requirements. Proposals shall be structured in a manner that clearly and specifically addresses each individual requirement, in the same order and general format in which they are presented in the SOW. **Typically, the proposal should include both an affirmative statement and explanation of how the contractor's proposed equipment will meet the requirements. Offerors may use product literature submitted with its proposal to address individual SOW requirements. If using product literature to address individual requirements, offerors should clearly provide where the information can be found in the product literature.** In addition offerors shall include the following information in their response to Technical Evaluation Criteria:
 - a. Offerors shall describe the system's displays, or controls that enhance the setup, operation, quality, safety and efficiency of the system and can be integrated with the delivered system.
 - b. Offerors explain the ability of system to fully function as a real-time system, especially the ability to simultaneously acquire raw data and calculate all combustion parameter on continuous, contiguous, combustion cycles while maintaining real time display and communication requirements. The contractor shall also describe the accuracy and response time characteristics of its system.
 - c. Offerors shall describe the ability of its systems to resolve crank angle.
 - d. Offerors shall describe their approach to establishing a communication/control interface with the Test Cell Control and Data Acquisition Systems provided by others.
 - e. Offerors shall include drawings, schematics and or photos which illustrate the size, typical location, maintenance access and connection points of the proposed system, including the configuration of charge amplification modules, and configuration

considerations taken to minimize measurement noise or otherwise enhance systems performance.

- f. Proposals shall include a Project Management Plan. The Project Management Plan shall include project schedule information and affirmative statements regarding the offerors ability to meet delivery requirements. An explanation of the management of the project, including a Gantt Chart showing major milestones should be submitted.
2. In its proposal, offerors shall provide evidence that its Engine Combustion Cycle Characterization and Analysis Systems have general acceptance in laboratories performing functions closely associated with the engine testing functions described in the SOW. Offerors shall list at least three different test laboratories using similar systems for Engine Combustion Cycle Characterization and Analysis. This listing shall include a brief description of each system. In lieu of a contract listing, or in addition to the contract listing, offerors should provide information such as drawings, photographs, technical data or papers, catalogs, project management information to establish general acceptance.
3. Submit a list of contracts and subcontracts completed which are similar in nature to this requirement. The contracts and subcontracts listed may include those entered into with Federal, State and Local governments, and commercial businesses, which are of similar scope, described in the RFP. Provide for each cited contract and/or subcontract the name of the client, address, phone number, e-mail address if applicable, and the period of performance.